

Specifications

Physical

Dimensions: 3.5 inch diameter, 10 inch length
 Weight: 3.7 lbs.
 Sieve: #4 mesh = 0.203 inch

Power

Battery: 9 V alkaline
 Measurements per Battery: >2000

Performance

Accuracy: +/- 5% full scale range
 Resolution: 1% volumetric water content

Included with the DMM600:

- CD containing (a) video instruction, (b) PCDMM software, (c) DMM600 operating manual, and (d) Excel spreadsheet for calibrations.
- 6 foot, 9-pin serial cable.
- Carrying case with screwdriver and spare 9-volt battery.



The Duff Moisture Meter was developed through cooperative research effort by the USDA Forest Service—Rocky Mountain Research Station and Missoula Technology and Development Center. The Forest Service collaborated with Campbell Scientific, Inc. Logan, UT, for production and marketing of the DMM600.

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Check Before You Ignite

Duff Moisture Meter

A New Tool for Today's Fire Manager



Making RxBurn decisions just got easier...

Get fast, reliable duff moisture content data where and when you need it—on the ground, in real time.

What is the Duff Moisture Meter?

Using a simple field sampling process, the duff moisture meter provides a real-time, accurate read-out of the *volumetric* moisture content of forest duff. With a known duff bulk density value, this standard readout can be automatically converted to *gravimetric* (“dry weight-based”) moisture content—the more commonly used measurement. The calculations for gravimetric moisture content, or any other user-defined calibration, can be easily downloaded from the PCDMM software (provided with DMM600) into the Duff Moisture Meter via a serial port connection on the base. Both the standard, volumetric moisture content, and the user-defined calibration are alternately displayed in the readout.



Basic Field Use

The sample, pulled from the lower half of the duff layer, is pushed through a #4 mesh sieve that fits in the opening of the sample chamber. This breaks up large organic fragments and removes sticks and rocks allowing for more uniform packing.

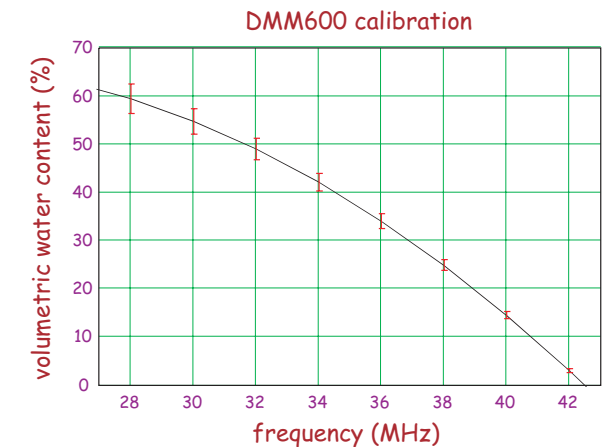
Once the sieved material fills the chamber, the cap is put on and the compression knob is turned until an audible indicator signals the sample is properly compressed. At that point, the measurement is complete and immediately visible at the base of the instrument.

Readings are displayed in real-time only; measurements are not stored. Total time needed to sieve and measure each sample is about 30 seconds.

How It Works

The tough, lightweight DMM600 is a portable, battery-powered device that uses frequency domain reflectometry (FDR) technology to determine the change in frequency of an electromagnetic pulse traveling along a waveguide (conductor). The magnitude of this frequency change depends on the dielectric constant of the medium adjacent to the waveguide. Because the dielectric constant of the medium varies with moisture content, the change in frequency varies from wet to dry. The DMM600's microprocessor converts the reflected frequency to a volumetric moisture content read-out.

Air voids in the organic material (duff) may reduce the apparent dielectric constant and/or create a poor contact between the duff and the waveguide located at the base of the sample chamber. By sieving the duff material and using the hand-turned compression plate, each sample is pressed evenly against the waveguide to reduce variability in measurements due to air voids. The audible signal in the compression system ensures that each sample is placed under the same pressure to reduce error between measurements.



The variability is smallest in the lower moisture/higher frequency area of the curve where accuracy is most critical.